Quantum

PX502 Tape Library
Quick Start Guide

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Introduction

The PX502 tape library is an automated storage and retrieval device consisting of up to two tape drives and up to 32 SDLT cartridges or 38 LTO tape cartridges (see figure 1).

Notational Conventions

This instruction uses the following conventions:

NOTE: Notes emphasize important information related to the main topic.

CAUTION: Cautions indicate potential hazards to equipment and are included to prevent damage to equipment.

WARNING: Warnings indicate potential hazards to personal safety and are included to prevent injury.

This document explains how to unpack the PX502 tape library and install it in a standard 19 in. rack. Once the library is unpacked and installed, set up the library using the instructions in the *PX500 Series User's Guide* PN 81-81290. **This installation procedure will take approximately 4 hours to complete.**

NOTE: It is recommended to review the entire document prior to beginning the installation.

Figure 1 PX502 Tape Library

Choosing a Location

When choosing an installation site for the PX502, consider the following requirements:

- Rack Space Requirements
- Environmental Conditions

Rack Space Requirements

Table 1 contains the rack requirements for the PX502 tape library.

Table 1 Rack Requirements

Dimensions	PX502
Depth	31 in (78.7 cm)
Width	19 in (48.3 cm)
Height	6.75 in (17 cm), 4U
Weight	52 lbs (23.6 kg)
Air Clearance	Open 4 in (10 cm) behind unit for proper air flow

Environmental Conditions

The installation site must have the following environmental conditions:

- Humidity: 20%-80% non-condensing
- Temperature: 10°C-35°C (50°F-95°F)
- Altitude: -500 to 10,000 feet (-152 to 3048 meters)

These environmental conditions apply when the PX502 tape library is in operation.

NOTE: For additional specifications, refer to the *Quantum PX500 Series User's Guide* (PN 81-81290)

Preparing for the Installation

Before you begin the installation procedure in this section, make the following preparations as described in this section:

- Providing Necessary Tools
- Taking ESD Precautions

Providing Necessary Tools

Provide the following tools for unpacking and installing the PX502 tape library:

- #1 PHILLIPS® screwdriver
- #2 PHILLIPS screwdriver
- #1 flat blade screwdriver
- Allen wrench (2.5mm and 3mm) included in accessory kit
- Antistatic wrist strap included in accessory kit

Taking ESD Precautions

Some components within the PX502 tape library contain static-sensitive parts. To avoid damaging these parts while performing installation procedures, always observe the following precautions:

- Keep the PX502 turned off during all installation procedures.
- Use an antistatic wrist strap (included in the accessory kit).
- Keep static-sensitive parts in their original shipping containers until ready for installation. Look for the ESD sticker to identify static sensitive parts.

- Avoid touching connectors and other components.

NOTE: Dry climates and cold-weather heating environments have lower relative humidity and are more likely to produce static electricity.

Unpacking the PX502 Tape Library

This section explains how to unpack the PX502 tape library and move it to its final installation location.

NOTE: Inspect the outer library packaging for damage. If there is any damage evident on the library packaging, do not continue with the installation and contact Quantum customer support.

By following these instructions, you help ensure that the system will continue to be safeguarded after it arrives at the installation site.

NOTE: Unpack the library as close to the installation location as possible.

Unpack and remove the following components from the packing materials (see figure 2):

1 Remove the accessories kit and set it aside.

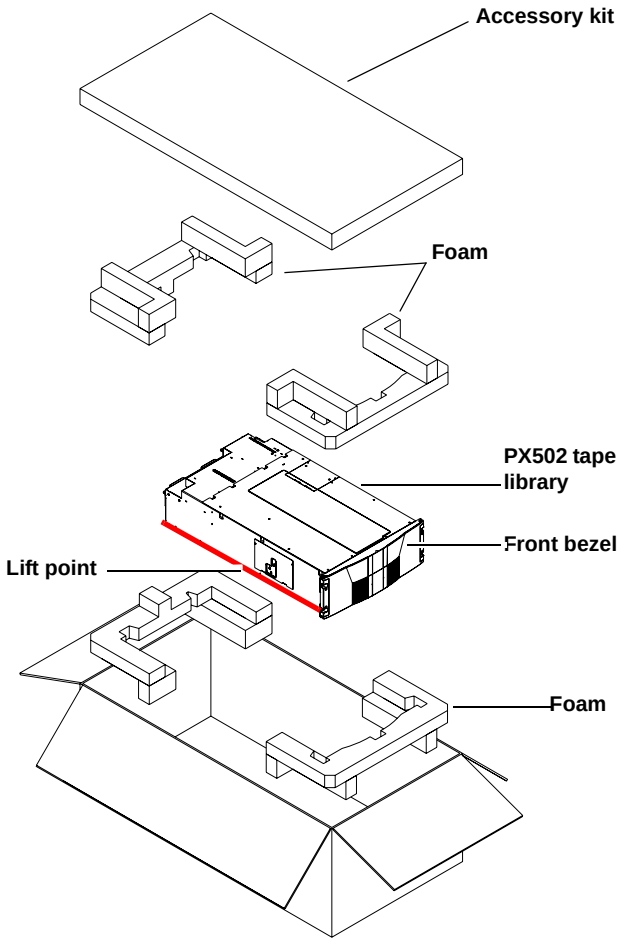
WARNING: At least two people are required to move the library chassis.

CAUTION: Lift the library chassis at the sides. Avoid putting the weight of the library chassis on the front bezel.

2 With the help of a second person, lift the library chassis up and out of the shipping carton.

3 Place the library on a table approximately waist high.

Figure 2 Unpacking the PX502



4 Remove the antistatic sheet:

a Cut the tape strips securing the sheet.

b Fold the sheet down.

c With the help of a second person, lift the library up off of the antistatic sheet.

d Place the library on the table or desk next to the antistatic sheet.

e If this is a multiple library stack, refer to "Multiple Library Stacks" on page 13 before proceeding.

The PX502 is ready to install.

Installing the Library

Installing a PX502 tape library in a rack consists of the following steps:

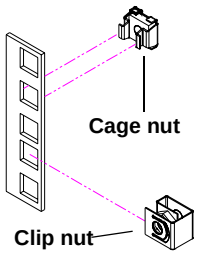
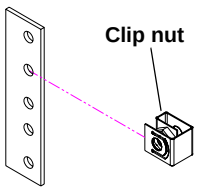
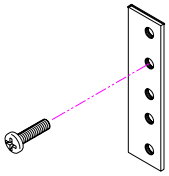
- Locating the Mounting Position
- Installing the Library
- Initial Configuration

Locating the Mounting Position

The PX502 tape library is designed to fit in a standard 19 inch wide rack.

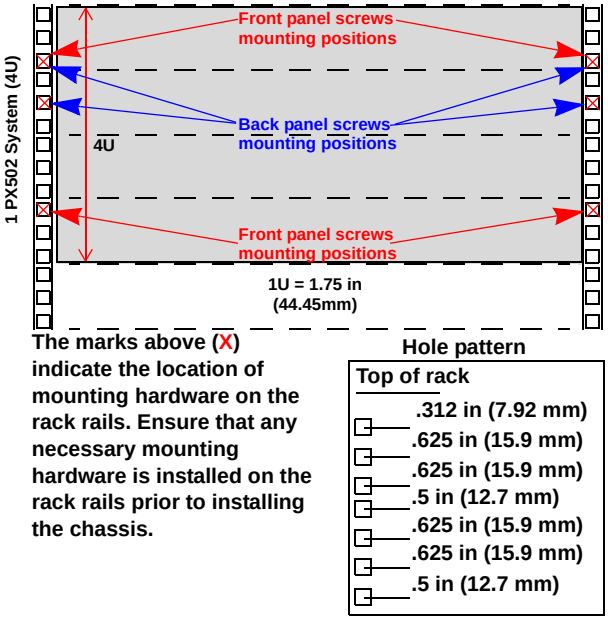
It is important to the library installation to locate the hole pattern in the rack rails (see figure 3). The library must be installed at the beginning of the hole pattern. Refer to table 2 for information on common rack hole types.

Table 2 Rack Hole Types

Figure	Description
	Square rack holes are the most common type of rack holes. They can accept either cage nuts which mount from the back of the rail or clip nuts which clip on from the side of the rack rail.
	Through holes require clip nuts to accept mounting hardware.
	Threaded holes require neither cage or clip nuts to accept mounting hardware.

NOTE: The rails within the rack have a hole pattern that repeats throughout the rail. X marks the screw positions. Install nut clips (included in the accessory kit) on the rails if necessary.

Figure 3 Rail Hole Pattern



The marks above (X) indicate the location of mounting hardware on the rack rails. Ensure that any necessary mounting hardware is installed on the rack rails prior to installing the chassis.

WARNING: If the rack is empty at the time of installation, do NOT install the PX502 tape library too high in the rack. The weight of the library may cause the rack to become "top heavy" and unstable if installed in the top of an empty rack. Begin installing the PX502 tape library from the bottom of the rack if more than one library is installed.

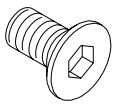
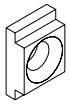
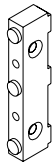
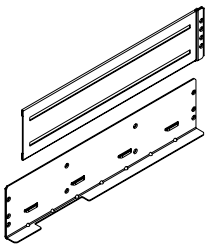
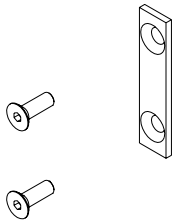
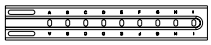
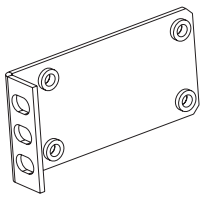
Installing the Library

Installing the PX502 tape library consists of the following steps:

NOTE: If this is an upgrade to an existing library system, see "Multiple Library Stacks" on page 13.

- Installing the Rack Mount Shelves
- Installing the Library Chassis
- Cabling the Library

Table 3 Library Mounting Hardware

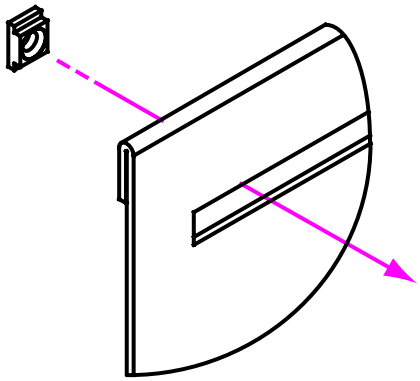
Qty	Figure	Description
16		Allen head screws (M5 x 10) for shelf assembly
8		T- nuts (M5)
4 metric and 4 standard		Rail adapters (both metric and standard holes are included, 8 total adapters, see figure 4)
2		Right and left support shelves (left shown)
4 sets		Front and back rail mounting hardware (M5 x 12 allen screws and mounting plates)
2 sets		Back bracket hardware (M5 x 8 allen screws and mounting plate)
2 sets		Back clamp hardware (M5 x 10 and back clamp)

Installing the Rack Mount Shelves

1 Assemble the rack mount shelves by (see figure 5 and figure 6):

a Loosely attach the adjustable shelves (right and left) with 4 M5 x 10 Allen screws and T-nuts.

NOTE: T-Nuts must be oriented so they fit in the grooves of the shelves.



b Attach the appropriate rail adapter to the front and back of the rack mount shelves (right and left) with 4 M5 x 10 Allen screws (each rail adapter is marked with the specific hole type supported, either metric or standard). The rail adapters have arrows indicating the proper orientation (see figure 4).

Figure 4 Rail Adapter Orientation

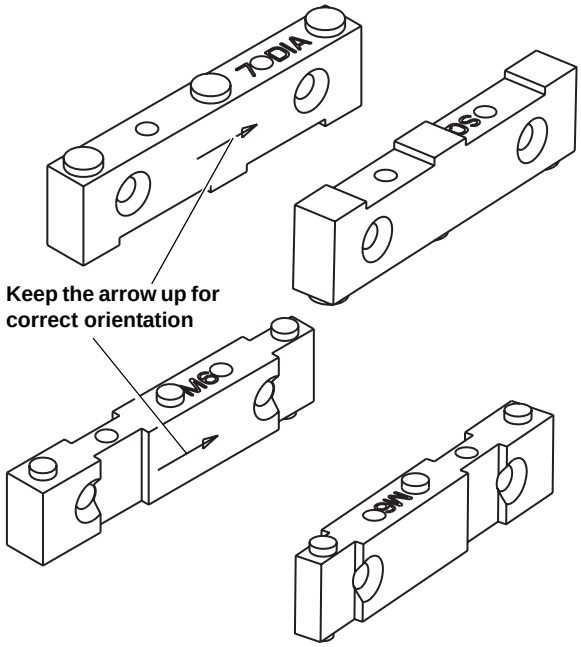


Figure 5 Assembling the Left-Hand Rack Mount Shelf

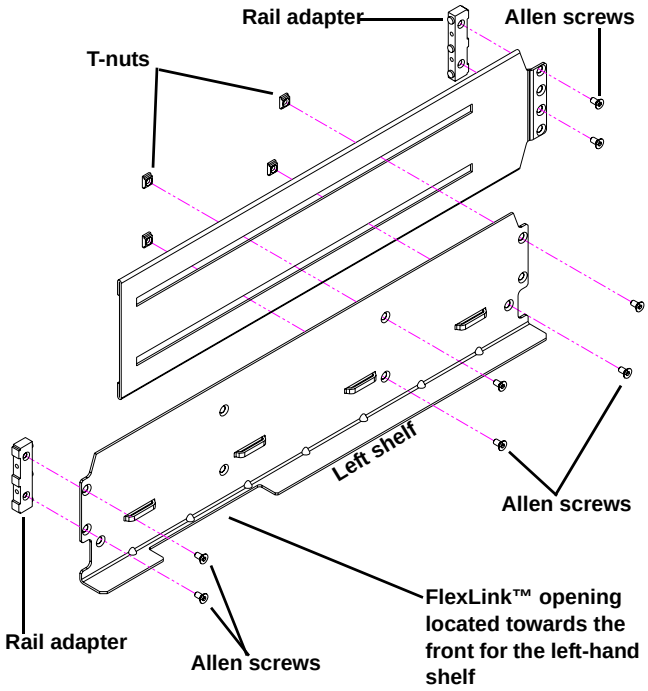
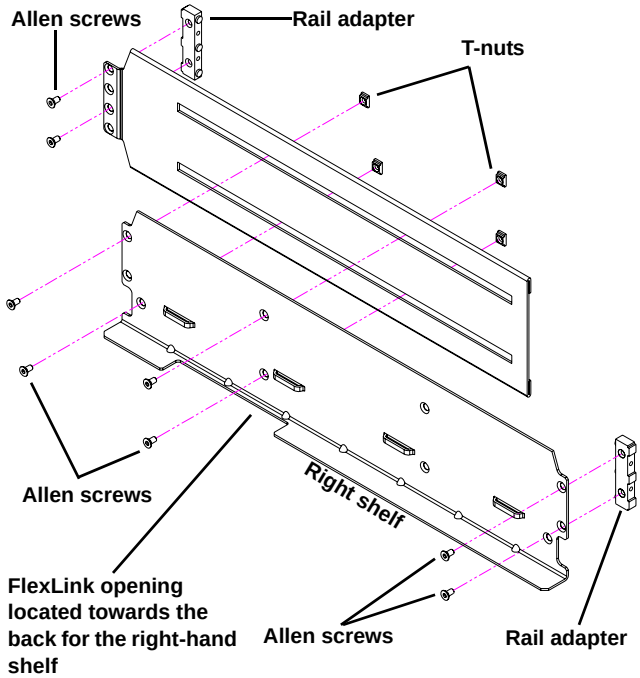


Figure 6 Assembling the Right-Hand Rack Mount Shelf

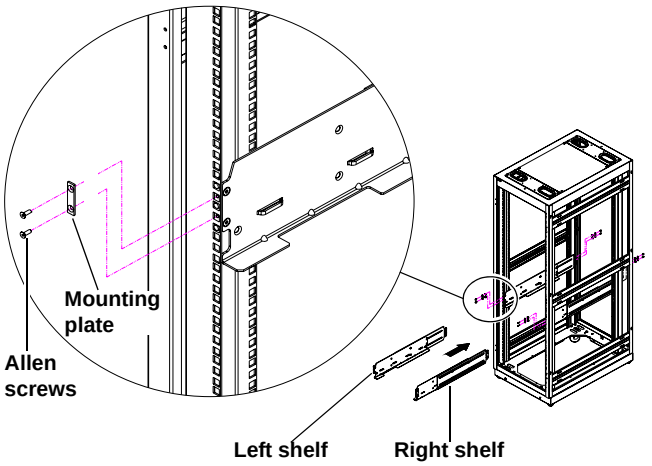


2 Install the left and right rack mount shelves into the rack (the rack mount shelves adjust 27 in. to 36 in.) and secure with the following parts in four locations (see figure 7):

- Mounting plate
- 2 M4 x 12 Allen screw.

NOTE: The rack mount shelves must be installed on the inside rack rails.

Figure 7 Installing the Rack Mount Shelves



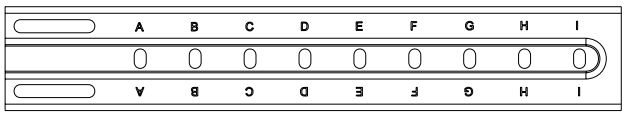
3 Once the rack mount shelves are secured to the rack, tighten the Allen screws securing the adjustable shelves together.

Installing the Library Chassis

WARNING: The PX502 tape library weighs approximately 52 lbs (23.6 kg). At least two people are required to lift and install the library.

1 The back mounting brackets are lettered (A through I) so the correct mounting position is easily determined. The mounting positions differ depending on the depth of the rack (see table 4).

Table 4 Back Mounting Bracket Orientation

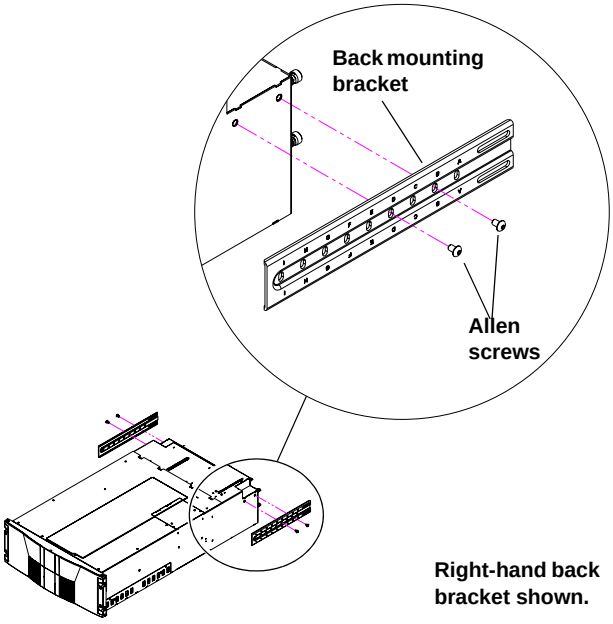


Rack Depth	Mounting Position
> 27 to 28 in.	Use holes A and C
> 28 to 29 in.	Use holes B and D
> 29 to 30 in.	Use holes A and C
> 30 to 31 in.	Use holes B and D
> 31 to 32 in.	Use holes C and E
> 32 to 33 in.	Use holes D and F
> 33 to 34 in.	Use holes E and G
> 34 to 35 in.	Use holes F and H
> 35 to 36 in.	Use holes G and I

Once the location is determined, attach the back brackets to each side of the library with four M5 x 8 Allen screws (see figure 8).

NOTE: Use the shortest depth number. For example, if the measurement is 34 in., use holes E and G.

Figure 8 Installing the Back Mounting Brackets

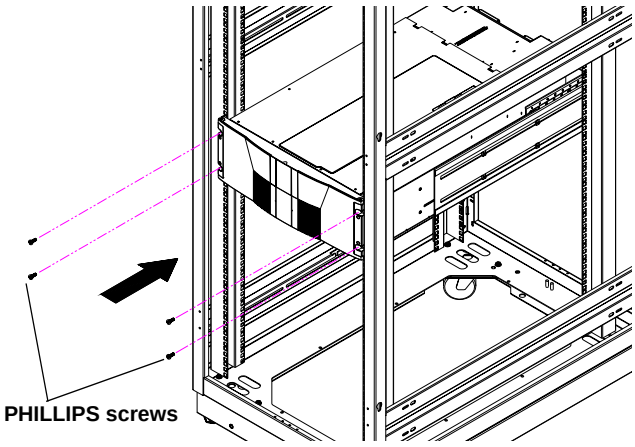


NOTE: If this is a multiple stack configuration, refer to "Multiple Library Stacks" on page 13 for information on preparing the library chassis for passing tape cartridges from one unit to another.

2 Install the library into the rack as shown in figure 9 and secure the library to the rack with four PHILLIPS screws.

WARNING: The PX502 tape library weighs approximately 52 lbs (23.6 kg). At least two people are required to lift and install the library.

Figure 9 Installing the PX502 in the Rack

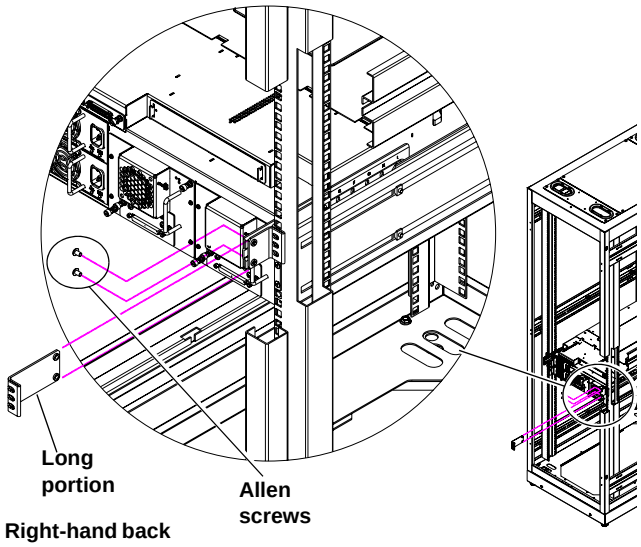


3 Secure the back of the library to the rack with two mounting clamps and two Allen screws on each clamp. The mounting clamps are oriented differently depending on the depth of the rack (see figure 10).

NOTE: If the rack depth is 27 to 30 in., the long portion of the clamp is mounted to the back. If the rack depth is 30 to 36 in., the long portion is mounted to the front.

4 Secure the mounting clamps to the rack rails with two PHILLIPS screws on each side (see figure 10).

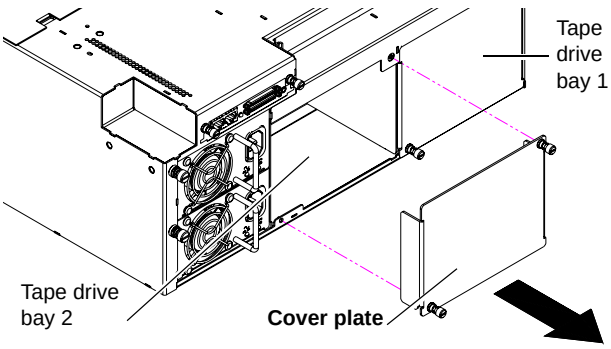
Figure 10 Securing the Back of the Library



5 To install the tape drives into the library:

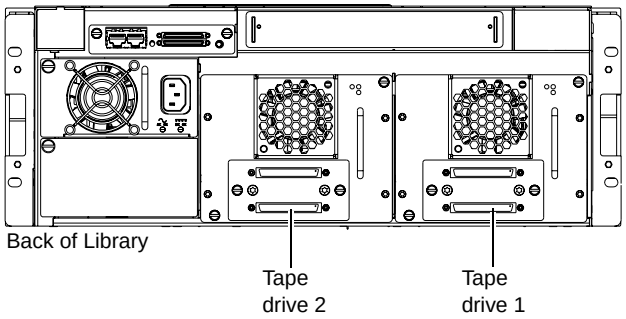
a Remove the tape drive cover plates (if necessary, some libraries ship with one tape drive installed) by loosening the captive screws securing the plate to the library chassis (see figure 11).

Figure 11 Removing the Tape Drive Cover Plates



b Insert the tape drive(s) into the drive bay(s) slowly until the connectors are seated. Refer to figure 12 for drive bay numbering (see the *Quantum PX500 Series Tape Drive Installation Instructions* PN 81-81301 for information).

Figure 12 Installing the Tape Drives



c Tighten the tape drive thumbscrews using a flat blade screwdriver.

d Repeat these steps to install another tape drive in a different location, if desired.

The library chassis is installed in the rack.

Cabling the Library

1 Connect the SCSI cables and jumpers as shown in the following figures:

- Figure 13 SCSI System Controller Board
- Figure 14 Surrogate SCSI System Controller Board
- Figure 15 Native Fibre Channel System Controller Board

NOTE: Quantum ships sufficient SCSI cables and terminators with the libraries to set up two-drives per SCSI bus. One tape drive per SCSI bus may be necessary for optimum performance. Refer to your tape drive documentation.

NOTE: SCSI cable lengths should not exceed:

- 39.37 feet (12 meters) between the host and the library for single drive per bus installations.

Figure 13 PX502 Cable Configuration (SCSI System Controller Board)

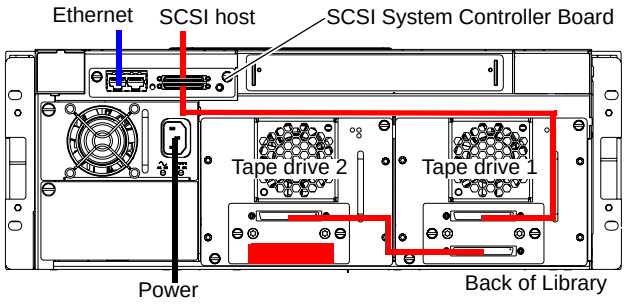
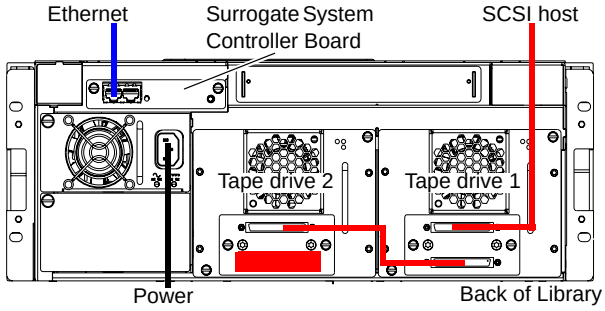
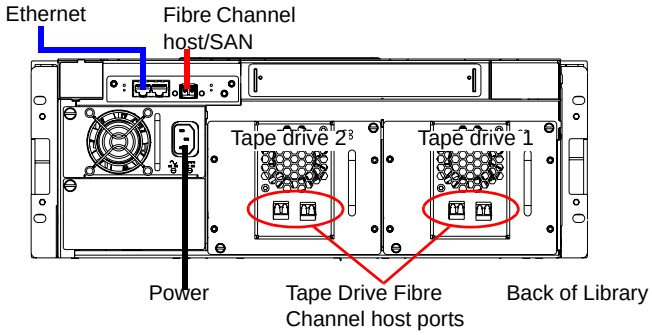


Figure 14 PX502 Cable Configuration (Surrogate)



NOTE: When operating in surrogate mode, the SCSI host connection must be made to tape drive 1.

Figure 15 PX502 Cable Configuration (Native Fibre Channel)



2 Connect one end of an AC power cable to each installed power supply and to a wall outlet.

Initial Configuration

Initially configuring the library consists of the following steps:

- Turning on the Library
- Removing the Remaining Packing Materials
- Setting the Library Options
- Setting the Date and Time
- Setting Network Information

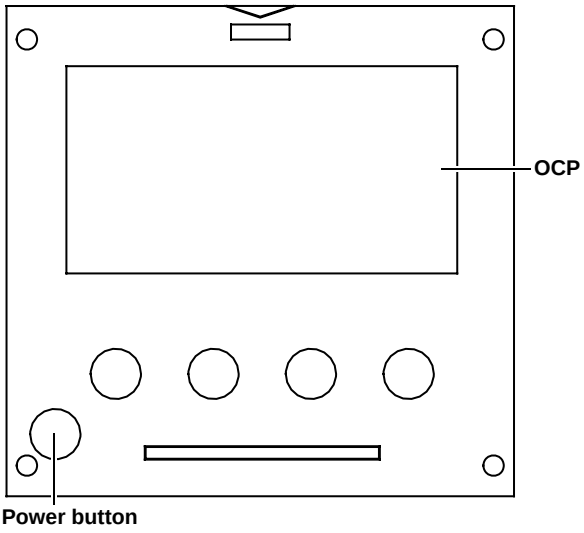
Turning on the Library

To turn on the library:

1 Verify that:
   - Power cables are firmly in place
   - All doors are closed and latched

2 Turn on the library by pushing power button located on the bottom left-hand corner of the OCP (see figure 16).

Figure 16 Turning on the Library



The power up sequence can take several minutes. The first message displaying will be “Are the internal packaging materials removed?” Continue with Removing the Remaining Packing Materials

Removing the Remaining Packing Materials

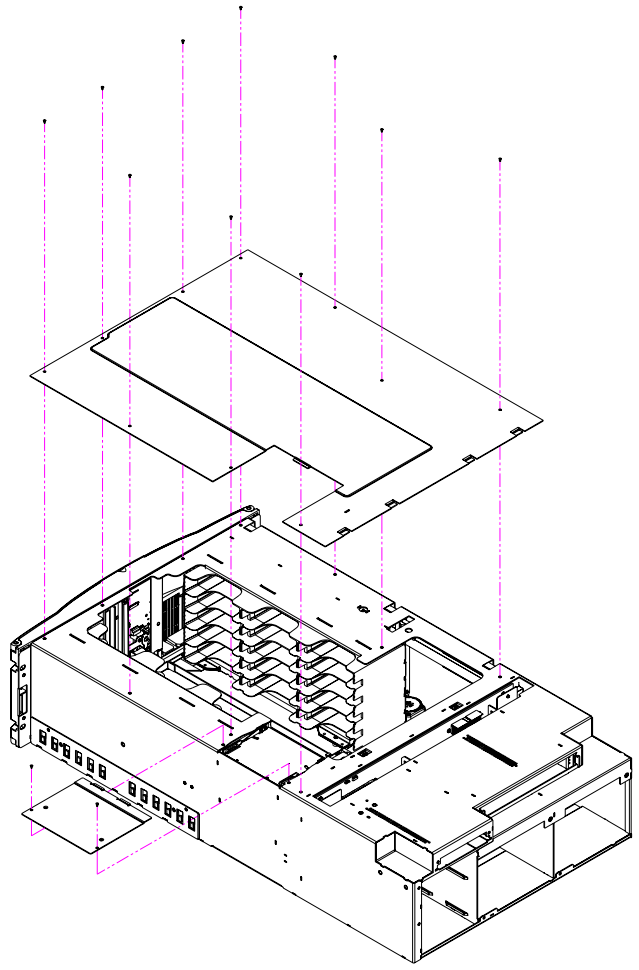
Now that you have installed the library chassis and powered on the system, you MUST remove the remaining packing materials from the library chassis before the library is operational.

1 Put on an antistatic wrist strap and clip it to the library chassis.

CAUTION: Take standard ESD precautions when performing this procedure.

2 **IF** there is space above the library to remove the top cover, remove the twelve PHILLIPS screws securing the top cover and FlexLink cover to gain further access to the internal packaging restraints (see figure 17). If there is no space above the PX502 library to remove the top cover, continue with Step 3.

Figure 17 Removing the Top Cover (Optional Step)



3 When the library powers on for the first time, the OCP asks you: "Are the internal packaging materials removed?" (**OK** or **NO**).

4 Press **NO** to continue. The system asks you again: "Are the internal packaging materials removed?" (**OK** or **NO**).

CAUTION: Pressing **OK** when the internal packaging restraints are in place will damage the library robotics.

5 Press **NO** to continue. The OCP displays "Doors opened, magazines released, pull magazines out before power shutoff. The library waits approximately 30 seconds for you to open the doors and remove both magazines from the library.

NOTE: If you are unable to remove the magazines before the library shuts down. Turn on the library power and repeat the steps above.

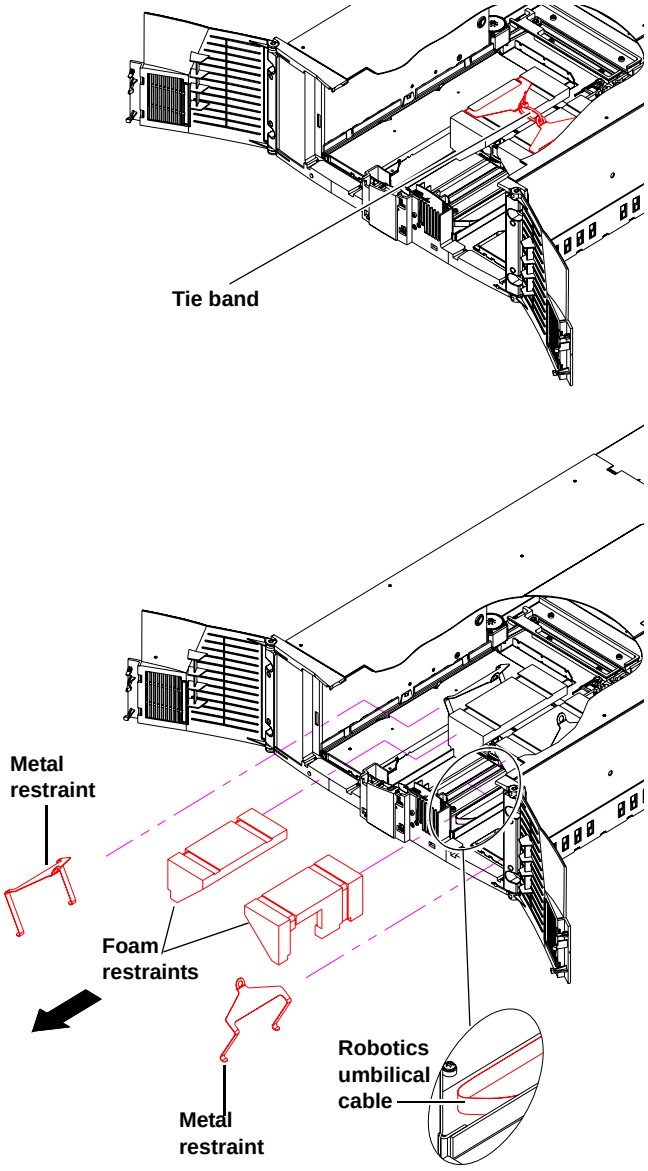
6 After the library has powered down, remove the foam restraints by completing the following steps (see figure 18):

- **a** Detach the tie band holding the two sides of the metal restraints together and remove it from the library.
- **b** Remove the metal restraints from the library.
- **c** Lift the left foam restraint slightly up and remove it from the library.
- **d** Slide the right foam restraint to the right until you are clear of the robotics motor and remove the restraint from the library.

CAUTION: Avoid touching the printed circuit board.

CAUTION: When removing the foam restraints, ensure that the robotics umbilical cable is lying down in the correct position and not across the robotics track.

Figure 18 Removing the Foam Restraints



NOTE: Save the robotics restraints and re-usable tie wrap for later shipping or relocation of the library.

e Install the tape cartridge magazines.

NOTE: Refer to the *PX500 Series User's Guide* (PN 81-81290) for more information on loading the tape cartridge magazines.

f Close the front doors.

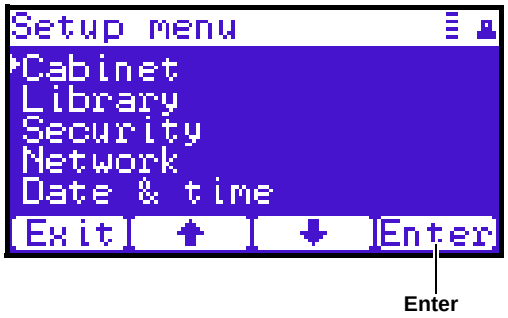
g If you have removed the top cover for better access, install the top cover back on the library.

Setting the Library Options

To set the library options:

1. Turn on the library by pushing power button located on the bottom left-hand corner of the OCP (see figure 16).
2. The OCP asks you: "Are the internal packaging materials removed?" (**OK** or **NO**).
3. Press **OK** to continue.
4. The OCP asks again: "Are the internal packaging materials removed?" (**OK** or **NO**).
5. Press **OK** to continue. The library continues the boot process. When complete, the **Home** screen displays.
6. Press **Setup** from the **Home** screen. The OCP displays the **Setup** screen (see figure 19):

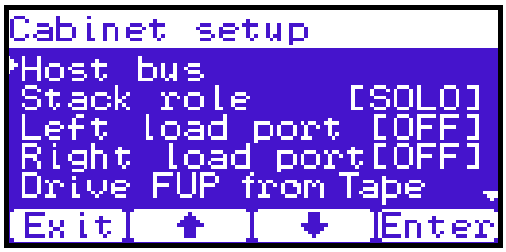
Figure 19 Setup Screen



7. From the **Setup** screen, use the up and down arrows to highlight **Cabinet** and press **Enter**.

   The **Cabinet** screen displays (see figure 20):

Figure 20 Library Options Screen



8. The **Stack role** screen allows you to configure the library as a "Master" or "Slave" in a multiple library stack. The library is configured "Solo" by default. If this is a multiple library stack, use the up and down arrows to highlight **Stack role** and press **Enter** displays the following information about the library:

Table 5 Setting Up the Cabinet

Cabinet Options	Description
Host bus	Sets the SCSI ID for both the library and tape drives.
Stack role	Assigns the library stack role as Master, Slave, or Stand alone (solo). There can be only one Master library in a multiple stack. Once configured as a slave, all library OCP functions can be controlled via the Master library OCP. The library model number will also change to PX500S indicating a stacked library configuration. The library model number is available from the home screen on the Master library OCP.
Left load port	Enables or disables the left load port
Right load port	Enables or disables the right load port
Drive FUP from tape	Allows you to perform a tape drive firmware update from a firmware update tape cartridge.

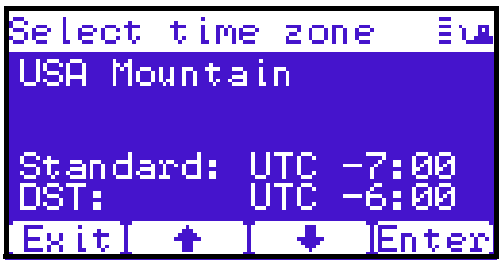
Setting the Date and Time

To set the date and time:

1 From the **Setup** screen, use the up and down arrows to highlight **Date and Time** and press **Enter**.

The **Date and Time** screen displays (see figure 21):

Figure 21 Date and Time Screen



The **Date and Time** screen displays the following information about the library:

2 Use the up and down arrows to view or edit the date and time information. Press **Enter** to accept the new settings.

3 When you are finished viewing/editing the date and time information, press **Exit** to return to the **Setup** screen.

Setting Network Information

To view or edit the network information:

NOTE: The library must be offline to change these settings.

1 From the **Setup** screen, use the up and down arrows to highlight **Network** and press **Enter**.

The **Network** screen displays (see figure 22):

Figure 22 Network Screen

The **Network** screen allows you to view or edit the following network settings:

- DHCP (default setting)
- IP address
- Subnet mask
- Default gateway

2 Use the up and down arrows to select the network setting you wish to view or edit and press **Enter**.

When you are finished viewing/editing the network information, press **Back** to return to the **Setup** screen.

3 For the network information such as the IP address to be active, you must reboot the library by holding down the power button located on the front of the library (see figure 16).

The library shuts down.

4 Push the power button to start the library.

The PX502 tape library is initially configured and ready for use.

Multiple Library Stacks

NOTE: If the library is NOT being installed with other libraries to operate in a multiple library stack, it is not necessary to complete the following instructions.

If the library will be installed in a rack with other PX500 Series libraries, you must prepare each chassis prior to installation. Preparing the library chassis for installation into a multiple library stack consists of:

NOTE: It is recommended to place the Master library in the middle of the library stack for improved performance.

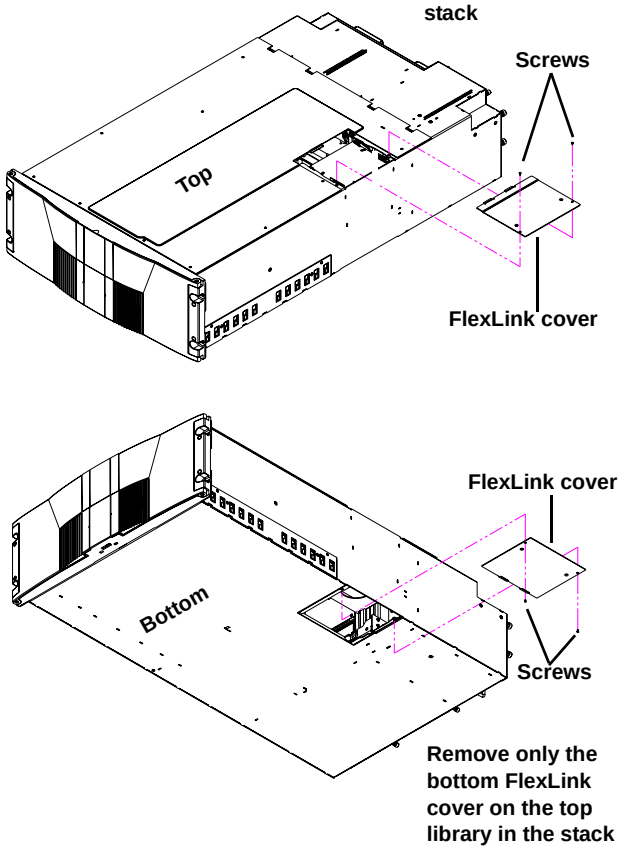
- Removing the FlexLink cover plates
- Installing the alignment hardware

To prepare the library chassis for multiple stack operation:

1 Remove two PHILLIPS screws securing each FlexLink cover located on the top and bottom of the library using a #1 PHILLIPS screwdriver (see figure 23).

NOTE: Remove the bottom FlexLink cover on every library except the bottom library in the stack. Remove the top FlexLink cover on the bottom library in the stack.

Figure 23 Removing the FlexLink Cover


Remove only the top FlexLink cover on the bottom library in the stack
Screws
Top
FlexLink cover
FlexLink cover
Bottom
Screws
Remove only the bottom FlexLink cover on the top library in the stack

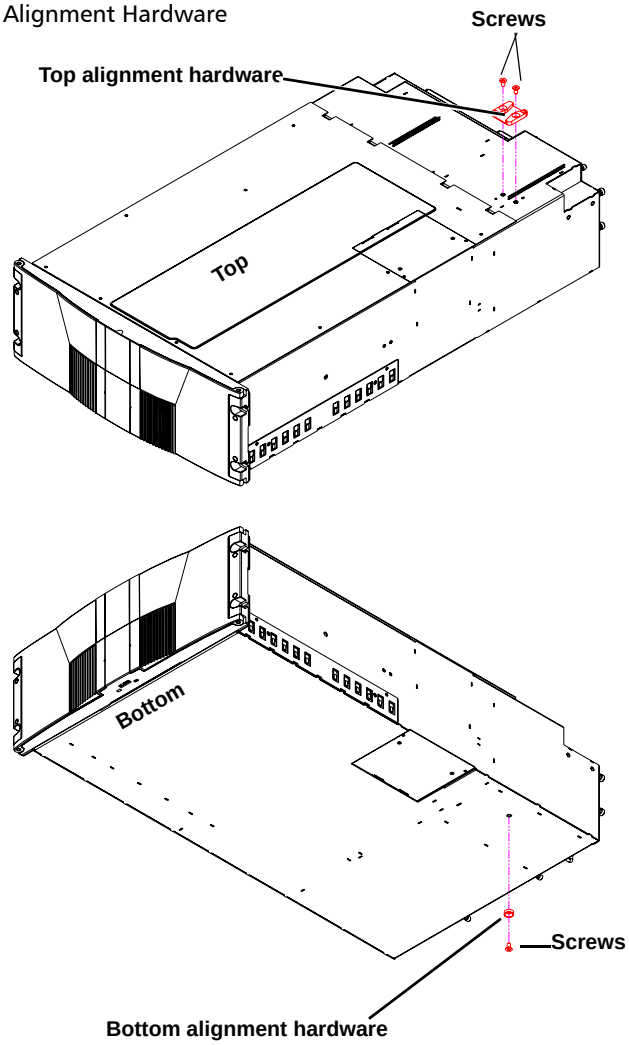
2 The alignment hardware installed on the top and bottom of the libraries in a multiple stack allow the FlexLink bays to align correctly when installed in a rack. Install the following alignment hardware (see figure 24):

a Install the top alignment hardware with two Allen head screws.

b Install the bottom alignment hardware with one Allen head screw.

NOTE: Install only the bottom alignment hardware on the top library in the stack and the top alignment hardware on the bottom library in the stack.

Figure 24 Installing the Alignment Hardware



The libraries are prepared for installation in a multiple stack.

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